

## Interpreting the Body Repair Manual

Following on from the technical report featured in the last edition of PanelTalk, we will examine our second place getter in the number of requests received for technical information and body replacement procedures - that place goes to Toyota.

This probably comes as no surprise, as the Toyota brand, across both the passenger and commercial variants, represents a good proportion of New Zealand's fleet.

There are numerous, distinct anomalies that regularly require explanation and understanding when completing many repairs and panel replacements on Toyota vehicles.

First, and arguably foremost, is the fact that many panel replacement procedures specify that O.E.M. spot welds are replaced with GMA, MIG plug welds. This typically determines that a typical rear quarter procedure, for example, will require a combination of both STRSW (Spot Welds) and MIG plug welds in the replacement method - this is often in addition to adhesive bonding processes.

All of Toyota's body repair information is accessed through their "Global Service Information Centre" (GSIC). The key word in this name is GLOBAL - the information that is produced is supplied for the world market - and that repair market is very diverse, when we examine the skill levels / technical capability / equipment levels of all the countries where Toyota vehicles are sold.

With this in mind, the most practical approach, from Toyota's point of view, is to specify MIG welding as the most appropriate welding method - because this is consistently more effective in producing a suitably strong weld - it must be remembered that many countries do not have the necessary welding equipment to perform STRSW effectively.

It is hoped that in the not too distant future, Toyota will

look to specifying that STRSW (inverter) welding processes will be suitable for panel replacements on their vehicles - subject to identifying the capability/specification of the welding equipment. In other parts of the world this is already specified, BUT is not yet recognised in this country.

So, at present, the general recommendations that I-CAR disseminates to the industry, are to follow the O.E.M. procedures - any deviations will require the repairer to be confident in the suitability of the changed method and have the formal data to back up the processes.

Secondly is being aware of, and understanding Toyota's welding, cutting and fitting symbols that appear in the replacement procedures - many of these documents include symbol identification, but there are those that do not - the technician must be able to refer back to Toyota's general recommendations and symbol identification information to ensure that the procedure is completed correctly, in accordance with the repair manual. (See figs 1 & 2)

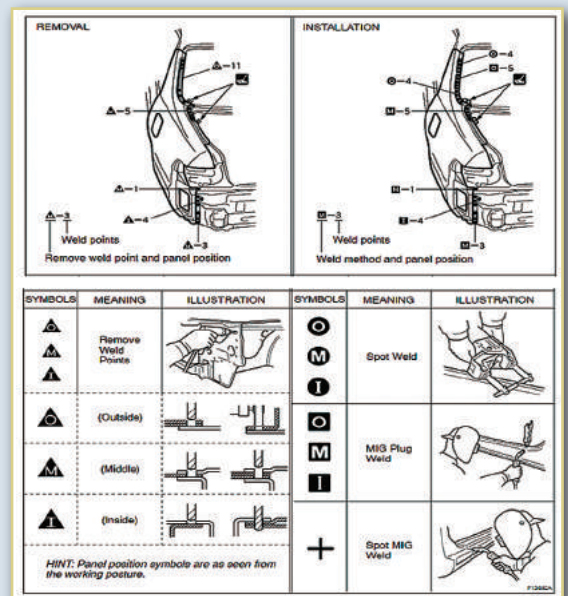


fig. 1

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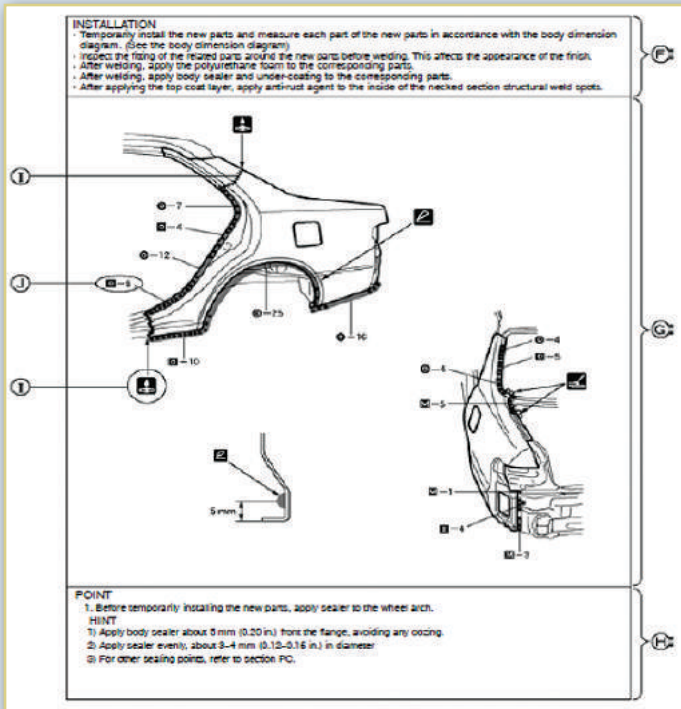


fig. 2

The third point to note is the fact that many of the Toyota vehicles sold in New Zealand are Japanese domestic market vehicles that, while looking the same or similar to our own models, have a bewildering array of different badge identities - The common Corolla is a good example of this :- often badged as Auris/Blade/Runx. Always check that you have the correct procedure documents that pertain to the vehicle being repaired, as there may be differences in the methods.

Almost all of Toyota's commercial fleet of vehicles that have a separate full frame chassis (Hi-Lux, Landcruiser, Prado etc) do not allow any sectioning of the chassis frame - this is in addition to the prohibition of heat. This should not be confused with chassis frame damaged parts replacement, such as X members, brackets and cab mounts -often these components are available as service parts and can be replaced at the factory joints, following appropriate welding techniques, completed by suitably qualified technicians.

The only exception to the no sectioning dictum by Toyota is for the Hi Lux - there is a very detailed and practical sectioning procedure that offers 3 options for sectioning locations on the front chassis rail ends, dependent on the extent of the damage. Note that this is in the crush zone

area of the chassis and does not extend further back into the full frame structure. (See fig 3)

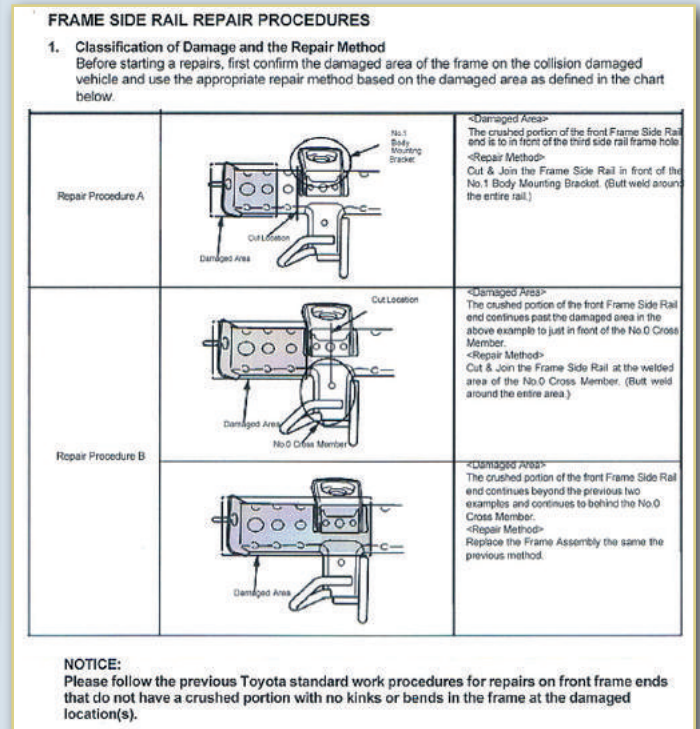


fig. 3

*Note; this illustration is only an example showing the cut locations and should not be used without having the full procedure.*

The last point to note is the fact that, while the "side aperture" structure on most Toyota vehicles (the A and B pillars, sill and rear quarter) is a single stamping at the factory, they are not supplied in this way - the "service condition" will determine that these parts are always cut at a common location. Some anomalies have arisen in recent times, when replacing multiple parts, where the body cuts at the factory do not match up and create a gap between the panels. This will require the body shop to look to carry out additional welds to bridge the distance between the replacement parts.